

“Ecstasy” or Agony—Research Suggests MDMA is Anything but Harmless

By Dan Harvey, for *Click Magazine*

Welcome to a “Rave.”

Music pounds with the piledriving force of jackhammers as lights flash with the rhythmic randomness of harnessed lightning. Bodies writhe and flail on the dance floor like souls swept up in an apocalyptic refinery detonation-*cum*-conflagration.

To the inexperienced, a typical “rave” dance might look like artist/filmmaker David Lynch’s worst techno-industrial nightmare. The illusion is underscored by the fact the celebrants—adorned in their weird clothes and makeup—often hold these gatherings in abandoned warehouses and soundtrack the event with blaring techno-pop.

However, to hear “ravers” talk about it, there’s more rapture than apocalypse to the experience. A rave is communal rather than chaotic—thanks to drug of choice, Ecstasy. According to users, Ecstasy imbues “raves” with a unique brand of good will while heightening the senses to giddy—and giggly—levels. But what most users don’t realize is that this seemingly benign substance is actually a neurotoxin, and it could very well be causing them serious and long-term—even irreversible—brain damage.

Recent research indicates that Ecstasy—or MDMA (for methylenedioxy-methamphetamine)—harms the brain cells that affect memory and sleep. And, most alarmingly, it indicates that even casual use can result in damage that is permanent.

“I think many people believe that MDMA is this relatively harmless and non-addictive drug,” said Katherine Prybys, MD, who is affiliated with Mercy Medical Center in Baltimore and the University of Maryland Medical System and has a specialty in toxicology. “This is clearly not the case. Recent research is beginning to show us the truly harmful health consequences of its use.”

Not surprisingly, federal and local agencies are looking to spoil the party. In May, legislation was introduced in the Senate that would make dealing Ecstasy as serious a crime as dealing methamphetamine. Even possession has become a much more serious matter. (In New Jersey, possession can bring a sentence of three to five years.)

Ecstasy users might find this to be a harsh overreaction, as Ecstasy does have a sweetly seductive lure. Everything about it just seems so—*nice*. For “Amy,” who describes herself as a former “casual” user who limited her intake to weekends only, Ecstasy provided insightful

introspection without the paranoia that often accompanies pot, and it had the consciousness-expanding capacity of LSD without any disturbing hallucinations.

“‘Rolling’ [on Ecstasy] is similar to ‘tripping’ [on acid] except that you’re really there,” she said. “It’s just that everything is more intense. But I’ve never ‘bugged’ out on it. I never had visions or anything like that. And it wasn’t like I was afraid to be around other people.”

Quite the contrary. Amy said that Ecstasy enhanced both the emotional and physical components of companionship, producing an intimacy unrestrained by self-consciousness.

“When someone touches you, it feels better,” she said. “People say that it’s a sexual drug. But I don’t think that it is wanting to have sex as much as it is just wanting to touch and be touched. Like at rave parties, I’ve seen girls kissing girls, but not in a sexual way.”

But the trouble with Ecstasy is that what makes it so alluring is also what makes it so dangerous. It targets the part of the brain that releases serotonin, a natural chemical that controls mood, sleep and memory. That’s why you always feel so good on Ecstasy. However, Serotonin release is one the body’s many regulatory, homeostatic mechanisms. To meddle with it is to upset a delicate balance.

“MDMA has been shown to harm neurons in the brain that release serotonin,” said Prybys. “This neurotransmitter plays an important role in the brain as it is involved in modulating many basic functions such as mood, personality, memory, appetite, sleep, sexual activities, and temperature.”

She adds that early studies suggested that MDMA use may lead to impairments of memory and cognitive function.

Once serotonin is released, Prybys explains, it binds to a receptor to stimulate a response. The serotonin is then released from the receptor and reabsorbed by the nerve ending so it can be recycled and made into new serotonin.

“MDMA reduces the number of serotonin transporters,” she said, “thus reducing overall serotonin production.”

In recent months, results of three studies have been released that seem to validate all the fears surrounding Ecstasy use:

- In one study, Johns Hopkins University researcher George Ricaurte compared brain scans of 14 Ecstasy users to non-users and found nerve damage that remained for at least seven years after use had been curtailed. This nerve damage could lead to premature aging of the brain, clinical depression, sleep disorders and learning impairment.
- Tests done by a team from Edge Hill College of Higher Education, Ormskirk, indicate that Ecstasy might have a long-term effect on memory. Current and former users, the team discovered, performed worse in tests involving memory than non-users. The tests

involved “working memory,” which involves common tasks such as interpreting visual and audio information and understanding language. The poor performance of former ecstasy users, the researcher said, suggests the possibility of long-term and irreversible physical effects.

- A study done by German scientists at the University of Aachen in Germany, and reported in a recent issue of the Journal of Neurology, Neurosurgery and Psychiatry, suggests that even light weekend use of Ecstasy might harm intelligence. In the study, researchers compared a group of Ecstasy users in their mid-20s who also used marijuana with a group of non-users and a group of marijuana users. The researchers reported that those who took Ecstasy along with marijuana performed worse on intelligence tests than people who only smoked pot or took no drugs at all. And these Ecstasy users, reported lead researcher Dr. Euphrosyne Gouzoulis-Mayfrank, said they were not heavy users.

Besides the possible long-term effects, Ecstasy use involves some immediate, short-term risks. Overheating is the most common. This happens because the release of serotonin plays havoc with the body’s ability to control its temperature. Incidents of death due to overheating have been reported. Other short-term risks include heart attack, electrolyte imbalance, or cardiac arrhythmia or dysrhythmia—something that “Amy” has experienced herself.

“After several hours, you go through a peak period where your heart starts racing,” she recalled. “But I think that’s because there might be coke or heroin in it. I know that one pill I took was cut with coke *and* heroin.”

And that brings up another significant concern. Much of the Ecstasy you’ll find on the street is adulterated. Quite often that happy little pill is “cut” with any number of dangerous substances, including animal tranquilizers, dextromethorphan, paramethoxyamphetamine, mescaline, caffeine, ephedrine and dexedrine—any of which can create a combination that is lethal.

“Remember, this drug is produced in clandestine laboratories,” said Prybys. “Numerous chemicals are involved in its manufacture. There are no legal monitoring or quality control measures. There is great potential for contamination of the drug product or the environment of manufacture.”

All of the concerns about Ecstasy compound when you consider its increasing use, which Prybys feels has reached problematic proportions. She cites the ‘Monitoring the Future’ survey, funded by the National Institute on Drug Abuse, which showed that in 1998 3.6% of 12th graders, 3.3% of 10th graders, and 1.8% of 8th graders reported MDMA use in the past year.

“Epidemiologists from major metropolitan areas continue to report increased MDMA use by adolescents and young adults, particularly at night clubs and raves,” Prybys reveals.

And though she’s stopped taking Ecstasy, even “Amy” sees the proliferating use all around her.

“Before it was just me and my friends doing it,” she said. “Now everybody is doing it. And everybody is selling it, especially at the beach. Starting last summer, I saw so many more people doing it.”

Another thing about Ecstasy: It’s been highly touted as an alternative to alcohol because it produces no hangovers. True, it produces no physical hangover, but, because it deals with the flushing out of serotonin, it can deliver an enormous emotional hangover. The flip side of an Ecstasy high is morning-after depression.

“The comedown is horrible,” recalled Amy. “When you wake up in the morning, you feel like s---t. I would feel really creepy. The feeling lasts a whole day, and it is horrible.”

So, all things considered, it seems Ecstasy is just another “bummer.”